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FEEDING AND MANAGEMENT OF HOGS

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Typical market hogs. Average weight at 7 months of age, 240 pounds.

INTRODUCTION

The object of this circular is to outline some approved methods of feeding and management of hogs for the benefit of all who are interested, and to supply some suggestions and practical information for the beginners.

ADVANTAGES OF THE SWINE INDUSTRY

Ranchers in California are gradually changing from exclusive grain or fruit farming to a more diversified system in order to maintain the fertility of the soil. Since live stock permits crops to be marketed at a higher average price per hundred weight, reduces much of the waste, provides a more uniform distribution of labor throughout

the year and makes possible the return to the soil of much valuable fertilizer, a rapidly increasing number of farmers are becoming live stock breeders.

The hog can utilize a majority of the waste products of the farm more economically, reproduce more rapidly, be secured with less outlay of capital and started as a herd more easily, and can be fed and marketed more economically than any other class of meat-producing animals. For these reasons this class of live stock is attracting marked attention at the present time.

PRESENT CONDITION OF INDUSTRY

The number of hogs in California last year was approximately 877,000. Statistics show a gradual increase for the past few years; also that the number now is fully one-fourth less than it was twenty-eight years ago. During this time the population has more than doubled, so that the pork produced here supplies probably not more than one-third the amount consumed. The market value of pure-bred hogs must have increased materially, for the total value of hogs now is more than double what it was twenty-eight years ago (when the number was fully one-fourth greater). Of course the price per pound is also higher, but it is not sufficiently so to account for the difference.

The entrance of many new breeders into this business and the shortage of the supply has created a very great demand for breeding stock. Breeders are finding a ready sale for good quality stock for breeding purposes and for the market.

THE ENVIRONMENT

Alfalfa grows in abundance in many sections of the state, and because of its high-protein and ash content is the most valuable pasture crop that can be produced. An average acre will take care of from fifteen to twenty pigs, or from 2,000 to 2,500 pounds of pork when grain is fed in addition. In this manner rapid gains and a high quality of pork can be produced. Rape, clover, or peas can be grown in some sections not adapted to alfalfa. Wheat, barley, corn, kafir, and milo will supply much of the necessary concentrates, and a great number of pounds of pork are annually produced from the waste wheat and barley left in the grain fields.

The hog is well adapted to the uniform climate found here, which permits of regular and rapid growth throughout the year. The market price for properly finished hogs is generally as high and sometimes higher in San Francisco and Los Angeles than at other market centers in the United States, quality considered.

TYPES OF HOGS

Two radically different types of hogs are recognized among the pure-breds—the bacon and the lard types. The former is well adapted to the production of deep, long, smooth sides. In this type the shoulders and hams are comparatively light and the back not nearly so broad as in the lard type. The lard type is well adapted to the production of hams, shoulders, and broad fat backs and loins.

The market demand in California is almost entirely for a block, or butcher's animal, which is best supplied by medium-weight lard hogs, hence the bacon type does not sell so readily as the latter. The lightweight hogs of the lard type seem to supply the demand for bacon satisfactorily, but when the bacon hogs are produced in sufficient numbers to establish a constant supply of high-class bacon for a curing business, they will undoubtedly find a ready sale.

LARD HOG TYPE

The lard hog type is one that has been developed principally in the cornbelt of this country. While this type is expected to produce a considerable amount of lean meat, it is also expected to produce a large amount of lard. The market in this state prefers a handy weight hog of about 225 pounds. In general he should be fairly long, broad, deep, uniform in width and depth, thick in flesh, and smooth and symmetrical throughout. The legs should be of medium length, straight and strong, and the bone sufficiently large to carry the weight easily.

Since the ultimate purpose of the lard hog is for the block, the breeder should cater to the demands of the butcher as nearly as possible.

BREEDS

The bacon type of hog is represented in this state by Yorkshires and Tamworths; the lard type by Berkshires, Poland Chinas, Duroc-Jerseys and Chester Whites.

Hampshires and Mule-Foots, intermediate in type between the two above mentioned, are found in some localities.

Each one of these breeds has its partisans and yet any of them seem to do well where given the proper care and handling. Crossing of the various breeds has been quite common, but since such a practice has not produced a better market hog—except sometimes in the first cross in herds that are badly run down—than is produced within a breed, and since such produce is not in demand for breeding stock the practice is not to be recommended and is gradually disappearing. Most of the breeds now show enough variation of type so that a breeder

can secure almost any type within the breed that he desires, without resorting to so radical a method as cross-breeding.[1]

BUILDINGS

Hog houses of almost every style are to be found in California, ranging from quite good to very poor. In some cases none are provided. Whether the house is a permanent, centrally located one, or one of the movable style, it should be clean, dry, free from draughts, and easily disinfected. A combination of a central house, with storage room for feed, and some farrowing pens, together with a number of movable houses seems to be the most feasible.

Lots that can be kept reasonably dry and clean should be provided around the house or houses where all hogs may secure sufficient exercise when pasture is not available.

SELECTION OF BREEDING STOCK

In selecting breeding stock for the foundation of a herd of breeding sows, the beginner will oftentimes be guided by the means at hand, and, if his experience and finances do not warrant beginning with pure-breds, he must needs be content with the best grades obtainable. These should be selected to conform as nearly as possible to one type, for unless they are of a uniform type no sire could be expected to beget an even lot of pigs from them.

The chief advantage of a pure-bred pig over the "common scrub" is in his greater possibilities. He has been bred and selected to consume large amounts of feed and put on his gain in that part of his carcass most valuable to the butchers. Since he can consume more feed daily, he makes larger gains and saves to the breeder the amount of feed required for his maintenance for the number of days taken to reach a given weight in advance of the "scrub." This, then, is the greatest advantage that the pure-bred has, and is sufficient reason from a financial standpoint alone for using pure-bred or high-grade breeding stock.

AGE TO BREED AND DETAILS OF BREEDING

Sows should not be bred to farrow until they are at least twelve months old. To do this they should be bred at from eight to nine months of age (the period of gestation is about 112 days), and sows of this age should produce but one litter the first year. After that they can readily produce two litters each year, provided they are properly fed and handled. In order to do this, the pigs should be weaned when about eight weeks old, and the sow rebred as soon thereafter as she

[1] Cross-breeding is the mating together of pure-bred animals of different breeds.

comes in heat, which will probably be in about three days. The period of heat is the time at which a sow is in season and ready to be bred. It usually occurs about every twenty-one days and, if a sow is not bred, lasts for two or three days. If bred at one period of heat and no sign of heat is evidenced when the next period is due, the sow may be considered to have conceived.

Some breeders prefer not to breed a gilt[2] until she is about fourteen months old, so that her first litter is produced when she is approximately eighteen months of age, and she is then bred to farrow every six months thereafter.

It has been proved that older sows produce more and heavier pigs than young sows, and their pigs gain faster while suckling. The records of the California Agricultural Experiment Station for the past three years show that the mature sows have farrowed 12 per cent. more pigs and 21 per cent. heavier pigs than the younger sows. It is a mistake to sell all of the sows after they have produced one litter, and depend on young untried gilts for the next crop of pigs.

Old sows sometimes become so heavy and fat that they lie on many of their pigs. Sometimes, too, they become deaf or blind, which contributes to the same trouble. To prevent this, a guard rail should be placed on at least two sides of the farrowing pen, six inches from the wall and about eight inches from the floor so that the little pigs will not get caught behind the sows. The bedding should be fine and not too plentiful in order that the little fellows will not get entangled in it and crushed by the mother when she lies down.

Pigs may be farrowed during any month of the year in this state, so far as weather conditions are concerned, however, it is not advisable for them to come during the hottest weather in July and August, and it is just as well to have the spring litter come near the close of the rainy season rather than earlier. The dates of reckoning the ages of pigs for the fairs and stock shows are March 1st and September 1st, so that breeders who contemplate exhibiting should have their pigs farrowed as soon after either of these two dates as possible.

The sows should be bred so as to farrow as nearly the same time as possible, for the pigs not only look better if they are about the same size, but they also do better. Where some are large and some small, the larger ones crowd the little chaps away from the trough and get more than their share of the feed.

There is a wide variance of opinion concerning the condition of sows at breeding and at farrowing time. However, it is quite generally admitted that sows which are gaining rapidly in condition at

[2] A gilt is a young sow that has not farrowed.

breeding time, conceive most readily and produce the largest litters. During the past three years the California Agricultural Experiment Station has secured an average of 8.6 live pigs to the litter from sows that the average breeder would call fat at farrowing time. These results seem to indicate that high condition obtained with the proper feeds and accompanied with an abundance of exercise is beneficial rather than detrimental.

A breeding crate is desirable on farms where many sows are kept. It conserves the energy of the boar and permits the use of old boars on young sows, and vice versa. When the breeding is done in this manner, the correct breeding date is much more liable to be recorded than is the case where the boar is turned in with the herd. There are many patent breeding crates on the market but it is entirely possible to build one at home that will answer the purpose quite well. An ordinary shipping crate with adjustable two by fours along the sides to support the weight of the boar, a small adjustable approach at the rear to raise or lower the boar, and a T shaped piece to place under the sow to hold her in the crate and keep her standing, are all that is needed.

SELECTION AND HANDLING OF THE BOAR

He should always be a pure-bred and a good individual. Some breeders prefer a boar that is rather more compact than the sows. It is important that he be *very* masculine in appearance, else he is liable to be disappointing as a breeder. He should be in strong, healthy, vigorous condition. To insure this he should be provided with a small pasture lot well fenced and provided with good shelter and plenty of grass.

It is sometimes necessary to use a young boar, but this should be avoided as much as possible. He may be used on a limited number of sows when eight or nine months old. When mature he may be permitted to serve two sows a day for a time, but this may prove too many if long continued. He will need a carefully-planned grain ration to keep him in proper condition. This ration may be composed of much the same material as is fed to the sows, an abundance of protein being essential. Barley, two parts, and middlings one part, for a boar in thin condition, or barley and middlings in equal parts for one in sufficiently high condition, is the regular thing. A small amount of tankage may be used in place of the middlings, and when oats are reasonable in price, they may replace part of the barley for a boar in good condition. The amount fed will depend on the condition of the boar. A gradual change in the ration occasionally to afford variety will prove beneficial.

CARE, FEED AND MANAGEMENT OF BROOD SOWS

Young sows intended for breeding purposes should be separated from the other pigs when about five or six months old, and kept in pasture. They should be fed a growing ration, not a fattening one. Barley will generally constitute the bulk of this ration in California, except in sections where corn does well. If the pasture is alfalfa or clover, only a small amount of some other feed or feeds high in protein will be necessary. If the pasture is other than alfalfa or clover, the high-protein feed should be increased in proportion to the barley or corn. Skim milk, tankage, wheat shorts or middlings, and perhaps soy bean meal and cocoanut meal will furnish the desired protein. Corn, kafir, milo and barley may be fed dry to hogs of almost any age, but the last three should be ground or rolled. Less barley will be wasted when fed in an open trough if it is soaked. Brood sows and young pigs seem to relish it more in this condition. If the grain is soaked, twelve hours is sufficient. Oats may be used as a part of the ration for brood sows, especially in conjunction with wheat, but both are usually too high in price to be used for hog feed, and oats are rather too bulky to constitute the entire ration. Dried beet pulp, soaked, may replace from one-third to one-half the barley.

The amount of skim milk to be fed will vary with the price of grain, but when barley is not higher than $1.00 per hundred pounds and skim milk or butter-milk can be secured for 25 cents per hundred pounds or less, it is most economical to feed not more than three and one-half to four pounds of milk for each pound of grain.

Tankage is so high in protein that one pound of it to from eight to twelve pounds of grain is sufficient, depending on the age and condition of the hogs.

Mature sows can make good use of some bulky feeds during the winter months, but they should always be fed a sufficient amount of grain to keep them in vigorous condition, and be supplied with sufficient protein and mineral matter to develop the growing foetus properly. Some alfalfa hay may be fed in racks or in the form of meal. A few cull potatoes, if cooked, may be used, also some pumpkins, sugar beets or mangels. It is poor economy, however, to attempt to use these feeds in such amounts that the sows are thin at farrowing time and the pigs weak because of improper nourishment.

An abundance of exercise should be provided for all breeding stock.

FARROWING TIME

Two or three days before farrowing sows should be placed in individual pens, which should be clean, dry, well-ventilated and lighted, free from draughts, bedded lightly and provided with a guard rail.

Those that are too fat, or those too thin and weak, may experience some difficulty in farrowing and should receive attention. For twenty-four hours before farrowing the feed should be light and nothing but an occasional drink of water need be given for twenty-four hours afterward. Some breeders prefer to give the sow a large feed, made up principally of bran, soon after she farrows, believing that she will settle down much more readily if she is not hungry.

After twenty-four hours a light grain ration should be given, and this should be increased daily until the sow is on full feed in about two weeks. During this time the ration should be similar to the one fed before farrowing. From this time on the object of the ration should be to produce as large a flow of milk as the pigs can handle properly. Some breeders find that the addition of some dried beet pulp (soaked) to the grain ration aids materially in increasing the milk flow. Overfeeding, which may cause the production of more milk than the pigs can use, often produces an inflamed condition of the sow's udder, and causes scouring in the pigs.

The mouths of all new-born pigs should be examined. If some long, black tusk-like teeth are found projecting outward against the lips, they should be broken off with a pair of nippers.

If the sows have not been furnished a sufficient amount of protein in the ration previous to farrowing they may eat the young pigs. To prevent this, feed a considerable amount of tankage for two weeks after farrowing to all sows that may not have secured enough protein during the gestation period. Should two sows, farrowing on the same day, have litters very uneven in numbers, it is often advisable to transfer some of the pigs from the sow having a very great number to the one having only a few.

Each sow with pigs should be kept in a separate pen until the pigs are at least two weeks old. After that ten or more sows may be allowed to run together if the pigs are about the same size. If they are uneven in size, the growth will be very uneven, for the stronger pigs will get more than their share of the feed.

CARE OF LITTERS

The opinion is quite prevalent in California that large litters are the more economical. This is not always the case. Large litters are desirable if the sow can raise them properly. If strong litters of seven and eight are farrowed and ninety per cent. of them raised, it is much more profitable than a moderately strong to weak litter of nine or ten, of which only sixty-five per cent. are raised. The first figures are being duplicated on the better managed farms, and yet the latter ones are higher than the average.

Pigs may be so large at birth that farrowing is difficult, but the larger they are, so long as this trouble is not experienced, provided they are strong and vigorous, the more rapidly will they grow afterwards. The birth weight of pigs at the University Farm has ranged from 1.7 pounds to 4.6 pounds and averaged 2.64 pounds for the last three years.

When the pigs are from three to four weeks old they will begin to eat and should be provided with finely ground grain and skim milk in a trough separate from their mothers. A "creep" may be built by placing a panel across the corner of the lot, which is built of slats four inches wide, placed six inches apart, perpendicular to the ground.

Pigs make their cheapest gains while nursing and the cost of their gains in food nutrients increases steadily from that time until they are mature. Therefore, if proper attention is given to the make-up of the ration so that it is reasonably economical, the more rapid the gains, the cheaper they are likely to be.

FEEDS TO USE

A number of different systems of growing pigs for market have been followed in various regions of this state. The most common practice in the Sacramento and San Joaquin valleys is to allow sows and pigs to live on pasture alone until the stubble fields are available. When these are cleaned up, the orchard and vineyard wastes are next utilized; then the pigs go back on pasture until the next year's stubble is available. After it is gone they may be fed for two or three weeks to harden them up, and are then marketed. There are two objections to the system. The first is that the pigs do not get to market until they are from sixteen to twenty-two months old, which means that for maintenance alone they have eaten the equivalent of about six hundred pounds of barley. The amount required for their growth must be added to this to obtain the cost of production. Of course, much of the food utilized is practically waste, but if the pigs are fed a medium grain ration in connection with the pasture, they can still make use of the waste material from the fields and go to market at about ten months of age instead of from sixteen to twenty-two, weighing about two hundred pounds. The ten months' old pigs will each have used for maintenance only about 263 pounds of barley, or barley equivalent, a saving of about 340 pounds of feed.

Alfalfa pasture alone will do little more than maintain the weight of the pigs. They will gain rapidly when furnished a heavy grain ration after having received nothing but pasture for several months,

but the product so produced is not a desirable one. Such a carcass is soft, dresses out only about 72 per cent. or 73 per cent., when it should dress from 78 per cent. to 80 per cent., and also shrinks about 3 per cent. in the cooler where it should shrink only about 1 to 1½ per cent. This class of pork has caused buyers to discriminate against California-grown hogs in favor of hogs grown outside the state. This discrimination can be overcome only by proper feeding.

Some growers in the Imperial Valley, hoping to overcome this objection, adopted a practice of removing the pigs from alfalfa pasture when they had reached a weight of about 100 pounds, and confined them in close quarters until ready for market. This method will overcome the objection mentioned above but has another just as serious; it is too expensive. Such a system might be commendable for fattening a hog of from 200 to 300 pounds weight, for the gain on a hog of this weight is mostly in flesh and not in growth of frame, but to grow a pig from 100 pounds to 200 pounds requires more growth of frame than increase in flesh. The best quality of product and most economical growth up to 200 pounds can be secured by a combination of grain and pasture.

In the coast counties where alfalfa is not commonly grown, less trouble is experienced with the carcass being too soft and too oily, but in many localities where acorns grow in abundance the same trouble is encountered in a more aggravated form. The acorns, unless supplemented with a substantial grain ration, produce flesh so soft that it is almost impossible to cure it, and for this reason it is often severely discriminated against on the market. The most satisfactory system of feeding is the one that will keep the pigs growing at a reasonable rate and do this economically. The use of home-grown feeds, so far as they suit the needs of the animals, is always to be recommended.

SELF-FEEDERS

In order to provide a liberal grain ration of corn or barley when hogs are on alfalfa and to keep the labor cost as low as possible, self-feeders will be found valuable. When barley is high in price so that a heavy ration might be too costly, alfalfa meal or some similar bulky feed may be mixed with the barley in order to prevent the pigs from eating so much of the latter. When barley is medium or low in price, the self-feeder may be filled with barley alone. Should the alfalfa pasture get dry or sparse, some high-protein feed may be furnished in a separate self-feeder. Tankage and cocoanut meal have been used in this manner at the University Farm with good results. Wheat shorts or middlings can be fed in this manner but should be mixed with the

rolled barley, using two parts of barley to one of shorts, by weight. Contrary to the general belief, the pigs will balance their own rations when all of the material necessary for proper growth is available in the feeds offered.

The system of feeding here advocated will readily produce a 200-pound pig at from seven and one-half to eight months of age. The feed required will vary from three to five pounds of grain, in addition to the pasture, for each pound of gain—the amount depending upon the thrift, vigor and capacity of the pigs.

MAINTENANCE OF HEALTH

No system of feeding is likely to prove satisfactory unless the hogs are healthy. Many of the losses occurring in herds of swine can be avoided by preventive measures.

Inbreeding—that is, the mating of animals closely related, should be avoided in most cases. Probably more serious, however, is the continuous use year after year of immature sows and boars. This practice is sure in time to produce small weak pigs of low vitality which readily succumb to the attacks of the various diseases. Long continued, the herd generally deteriorates very perceptibly in rapidity and economy of gains and in general excellence. The decline may be so gradual as not to be observed by the owner, yet there is probably no other single factor so detrimental to the prosperity of the swine industry as this one.

Clean, dry sleeping quarters free from draughts are essential. When such are not provided, rheumatism, asthma, and pneumonia are prevalent, and lice and worms find excellent harboring places.

A central hog house that can be kept clean, dry, free from dust and draughts is a convenient place for farrowing and for the storage of feed. If runways of alfalfa or grass can be provided, so much the better. It is often advisable to supply individual houses for use in conjunction with the central hog house. These can be readily moved to adjacent pastures by a team of horses. During the summer months a shade of rough boards or limbs of trees covered over with straw or hay may be sufficient to protect the hogs from the sun. These places should be kept free from dust. Some breeders prefer a hog wallow to keep the hogs cool. If this is built of concrete or similar material and constructed with an outlet drain so that it can be kept clean, it may prove very useful, but a mudhole is generally worse than nothing. It soon becomes filthy and when the hogs get badly covered with mud, especially in the Imperial Valley, they are liable to develop a serious skin disease.

If clean running-water can be provided, with no chance of its having become contaminated up the stream, the hogs may make good use of it. The bed of such a stream should be composed of sand or gravel. Irrigation ditches should never be used for hog wallows.

The feed should be of sufficient variety, palatability, bulk, amount, and in proper condition to keep the hogs thrifty, for in such a condition they are best able to ward off the attacks of disease and parasites.

Dipping will help to keep the animals free from lice and similar parasites. Crude oil is the most effective for destroying lice, but the occasional use of one of the coal tar disinfectant dips is beneficial.

*Intestinal Worms in Pigs.**—"Intestinal worms are common in hogs and are particularly injurious to growing pigs. Insufficiently fed, neglected pigs living in dirty pens and yards, fed from filthy troughs, drinking contaminated water, bathing in old hog wallows, and rooting and sleeping in manure piles and stack bottoms, soon become infested with worms, consequently they do not thrive, but develop into pot-bellied, rickety, profitless runts. Pens should be kept clean and dry and the manure frequently removed.

"It has been asserted by various experienced feeders of hogs that a mixture of charcoal, ashes, lime, salt, sulphur and copperas kept where the hogs can eat it, will tend to prevent worm infestation. There is not as yet positive experimental evidence in support of the idea that such a mixture will prevent worm infestation, but the mixture does appear to satisfy the hog's desire for mineral substances and probably is of value as a tonic and appetizer. It may be made in the following proportions:

Charcoal Mixture:

Charcoal, 1 bushel	Air slaked lime, 4 pounds
Hardwood ashes, 1 bushel	Sulphur, 4 pounds
Salt, 8 pounds	Pulverized copperas, 2 pounds

"Mix the lime, salt, and sulphur thoroughly and then mix with the charcoal and ashes. Dissolve the copperas in two parts of hot water and sprinkle over the whole mass, mixing it thoroughly. Keep some of this mixture in a box before the hogs at all times, or place in a self-feeder.

"Santonin, which was formerly widely used as a remedy for worms in hogs, is practically unobtainable at the present time owing to foreign trade conditions.

* U. S. Dept. Agr. Weekly News Letter, Vol. III, No. 37.

"The following treatment has been found very effective against intestinal worms in experiments conducted by the Zoological Division of the Bureau of Animal Industry: Withhold all feed and water for twenty-four hours, then give each pig 1 to 4 ounces of castor oil to which has been added oil of American wormseed as follows: Small pigs, 2 to 3 months old, 35 drops; pigs weighing from 50 to 100 lbs., 50 to 100 drops; larger pigs, 1 teaspoonful.

"Each pig should be dosed separately if the best results are to be obtained.

"*Dangerous to drench hogs.*—Drenching hogs is dangerous, as they are liable to get the remedy into the lungs. With sufficient assistance pigs may be held, the mouth kept open by means of a couple of loops of wire or rope; and the medicine given directly in a tablespoon. By this method, though it is troublesome, one may be certain that each pig gets his proper dose. After dosing, the pigs may be fed and watered. Repeat the treatment in 10 days."

Cholera is the most serious and costly disease affecting hogs in this country. The following suggestions if consistently followed will reduce to a minimum the ever present danger from hog cholera:

Locate your hog lots and pastures away from streams and public highways, and do not allow the hogs to run free range or permit access to canals or irrigation ditches.

Do not visit your neighbor or allow him to visit you if either of you has hog cholera on your premises.

Do not drive into hog lots when returning from market or after driving on public highways.

Do not use hog lots for yarding wagons and farm implements.

Do not place newly purchased stock, stock secured or loaned for breeding purposes, or stock exhibited at county fairs, with your herd. Keep such stock quarantined by keeping them in separate pens for at least two weeks and use care to prevent infection from these to other pens in feeding and attending stock.

Burn to ashes or cover with quicklime and bury under four feet of earth all dead animals and the viscera removed from animals at butchering time because they attract the attention of buzzards, dogs, etc., which are liable to carry hog cholera infection.

Confine your dogs and do not keep pigeons unless you confine them.

It is preferable to secure the water supply from wells.

For particulars concerning this disease and its control, write the Director of the Agricultural Experiment Station, Berkeley, California, for Circular No. 106 on "Directions for Using Anti-Hog Cholera Serum," and Circular No. 132, "When to Vaccinate against Hog

Cholera," and the U. S. Department of Publications, Washington, D. C., for Farmers' Bulletin No. 379, on "Hog Cholera."

BUTCHERING, CURING AND KEEPING OF PORK[3]

There are different methods of butchering and various recipes for curing pork products. The methods herein described are not new and are perhaps no better than many others, but will furnish a guide for the novice who desires to do his own slaughtering and curing.

Hogs for home use may vary in weight to suit the size of the cuts to the size of the family, but care should be taken not to use pigs that are quite immature, or some difficulty may be encountered in curing the meat. A live weight of from 200 to 250 pounds will be found most satisfactory if the animal is in good condition and not over one year old. Almost any shed, having good beams, can be converted into a slaughter house. If more than two or three head are to be killed at a time, the expenditure of about $75.00 in equipment will be found most convenient. An overhead track, one or two block and tackles, a scalding vat, tables, a few shelves and a lard cooker will be found useful.

When the water has reached a temperature of 140 degrees Fahr., the hog should be pulled up with a block attached to a chain about the hind legs and stuck. Hanging in this manner produces rapid and complete bleeding. After this the pig is ready for the scalding vat. A thermometer should be available to make sure that the temperature is correct. If one cannot be secured some fresh blood should be placed in the vat. If a "milky" appearance is thus produced, the water is too hot. Too high a temperature is liable to "set" the hair so that it cannot be scraped off. A slow scald is desirable. Some washing powder or wood ashes may be added to the water to remove dirt from the hide. Saucer-shaped scrapers, which can be secured at any hardware store, are preferable for removing the hair. Following the scraping, the hog should be thoroughly washed with luke-warm water, and is then ready to be hoisted to the track, hung on gambrel sticks and dressed. Clean, fine hardwood sticks may be used to spread the carcass open to insure rapid cooling. All of the instruments and carcasses should be kept absolutely clean.

CURING PLAIN SALT PORK

When the carcass is thoroughly cooled out it can be cut up, rubbed thoroughly with fine salt and packed closely in a barrel. After twelve hours a brine consisting of 10 pounds of salt and 2 ounces of salt-

[3] For similar methods described more in detail, see Farmers' Bulletin No. 183, U. S. Department of Agriculture.

peter for each 100 pounds of meat, dissolved in four gallons of boiling water and allowed to cool, should be poured over the meat and a large rock placed on top to keep the meat down. The pork can be kept in this brine until used.

DRY CURED PORK

When cool cut up the carcass, rub thoroughly with salt and pack in boxes. All spaces are filled with a good quality of fine salt. Keep it packed for from eighteen to thirty days. The pieces may then be taken out and the surplus salt washed off. It is now ready for smoking. For this purpose hardwood is desirable. Good results have been reported from the use of green apple wood. Corn cobs will do. After the smoking is finished the flesh side can be painted with sorghum molasses, into which a considerable amount of black pepper and a small amount of red pepper have been stirred. After the surface is dry, a second painting is given.

The pieces can then be wrapped in good building paper, covered with cotton sacks and hung up, with the small end of the hams and shoulders down, until ready for use.

In warm weather this recipe should be used with caution, if at all.

SUGAR CURED HAMS AND BACON

A standard recipe used generally for this process is as follows:

The process is the same as given above for plain salt pork until the amount of the materials is reached; then use 8 pounds of salt, 12 pounds of brown sugar and 2 ounces of saltpeter. Dissolve in hot water as before and cool thoroughly; pour over the meat and place the weights on. The thinner pieces should remain in the brine from four to six weeks; hams and shoulders six to eight weeks. Smoking can be done as previously described.

TRYING OUT LARD

Only the choicest fat should be used. Many people prefer to keep the leaf lard separate from the other, as it is very clear and white. The gut fat should not be mixed with any other since it often has a strong taste. All the fat should be cut into pieces not longer than one to one and one-half inches and no lean meat put in, as it will often cause trouble at time of boiling by sticking to the kettle and burning.

Put a quart of water in a clean kettle and fill about two-thirds full of cut fat. The water is to prevent the fat from burning before it begins to melt. A moderate fire should be kept until the cracklings

are brown and will float. Occasional stirring is necessary to prevent burning. The melted fat, after cooling slightly, is strained through a muslin cloth into a stone jar. An occasional stirring while cooling will help to whiten the lard. Sometimes a teaspoonful of salt is sprinkled over the bottom of each can or jar to help preserve the last of the lard. Covers should not be placed on the containers until the lard is cool.

SAUSAGE

Various proportions of fat and lean meat are used for sausage making, some preferring not more than one pound of fat for each three pounds of lean; others as much as one pound of fat for each two and one-half pounds of lean. Only the better trimmings should be used. They should be cut up and run through a grinder twice. For seasoning, one-half ounce of black pepper and one ounce of pure, fine salt for each four pounds of meat, and one tablespoonful of cayenne pepper for each sixty-five pounds of meat will suit the average taste. Sage may be added if desired. This seasoning should be spread over the meat after the first grinding so that the second grinding will mix it more thoroughly than it can be done by hand. The meat may then be stuffed into muslin bags, whose diameter should be preferably not over three inches, and the length may be eighteen to twenty inches. The bags may then be dipped in melted paraffine and, if hung in a cool place, should keep for sometime. Sausage may be kept for a time in a cool place if run into a stone jar and covered over the top with a thin layer of lard.